

Serial No. 09/928,616
Examiner Yoon
Filing Date: August 13, 2001

REMARKS

As a first matter, the Applicants thank the Examiner for allowing claims 2, 9 and 11, if rewritten in independent form with all the limitations and with the appropriate section 112 matters addressed. Applicants have amended claim 10 to address the cited 112 matters and believe that these claims would now be allowable if rewritten in independent format. At the appropriate time, if necessary, Applicants will so rewrite the claims.

The Examiner has also rejected claims 1-3, 10, 12 and 13 as allegedly anticipated by or alternatively obvious over Pears (US 5,147,925 or EP 0 442 652). Applicants respectfully traverse the Examiners rejection.

Pears relates to a polyurethane polymer having desired chain-pendant or in-chain groups Y. The polyurethane is prepared by 1) converting terminal isocyanate groups of an isocyanate terminated polyurethane prepolymer to groups providing carbon- or nitrogen bound $-NH_2$ and/or $-NH-$ groups, and 2) chain extending the modified prepolymer formed in 1) with a compound having at least two enolic carbonyl groups and also having at least one group Y which becomes chain-pendant or in-chain in the chain-extended polymer. The Examiner quotes page 3, l. 9 of Pears, where it is described that the enolic carbonyl group of the chain-extending compound would normally be a ketonic carbonyl group, but can possibly also be an aldehydic carbonyl group. Pears further describes that the chain-extension step is thought to proceed through attack by $-NH_2$ (or $-NH-$) groups of modified prepolymer molecules on the enolic carbonyl groups of the chain-extending compound so as to achieve bonding by means of formation of an enamine structure by elimination of water (p. 4, ll. 24 - 30). As can be inferred from the formulae on p. 4, ll. 33 - 42, the formed enamine structure no longer contains the carbonyl groups. Thus, in contrast to what the Examiner has alleged, selection of aldehyde groups as enolic carbonyl groups of the chain-extending compound would not lead to an aldehyde functional polyurethane, because the aldehyde groups would be depleted during enamine formation. Therefore, the passage quoted by the Examiner does not anticipate the present invention, nor would the currently claimed subject-matter be obvious in view of the quoted passage.

Pears also describes that functional groups Y introduced by the chain extending compound can be ketonic or aldehydic carbonyl groups, which could be provided by

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having three or more independently reactable enolic carbonyl groups in the chain-extending compound (p. 5, ll. 50 – 53).

Thus, according Pears, one would need a chain-extending compound having at least two enolic carbonyl groups and additionally at least one aldehyde group in order to arrive at an aldehyde functional polyurethane. However, Pears does not disclose (anticipate) nor suggest (obvious) such a compound having at least two enolic carbonyl groups and additionally at least one aldehyde group. Therefore, a skilled person following the teaching of Pears, cannot arrive at an aldehyde functional polyurethane.

Moreover, a skilled person following the teaching of Pears and trying to arrive at an aldehyde functional polyurethane would have to address the problem of how to obtain a compound having at least two enolic carbonyl groups and additionally at least one aldehyde group. Pears contains no reference or suggestion as to how to obtain such a compound. Upon information and belief, such compounds are not generally available, if they are known at all.

Claims 1, 3 –8, 10, 12, and 13 also stand rejected for alleged obviousness over Pears in view of Vogt-Brinbrich et al (US 5,552,496). The discussion of the lack of anticipation and obviousness with respect to Pears, is set forth above and applies to the present rejection. The Examiner goes on to cite Vogt-Brinbrich for describing the use of polyurethane coating compositions in coating automobiles. An aldehyde functional polyurethane resin is neither taught nor suggested in Vogt-Brinbrich. Therefore, a combination of the teaching of Pears with Vogt-Brinbrich cannot possibly lead to the currently claimed subject-matter.

Accordingly, claim 1 and dependent claims 3-8 and 10 and 12 are not anticipated nor obvious in light of Pears. Furthermore, the current claims are not obvious over Pears in view of Vogt-Brinbrich.

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CONCLUSION

As set forth above, the present claims are neither anticipated by nor obvious in light of Pears and they are not obvious in light of Pears in view of Vogt-Birnbrich, which neither discloses nor suggests the present invention, nor is there a motivation to combine these references with respect to the present invention.

Based on at least the application, and the remarks herein, Applicants maintain the present invention is not anticipated by the prior art, nor is it obvious in view of the cited prior art documents, either alone or in combination.

Applicants request withdrawal of the objections and believe the present application to be in condition for allowance, which action is respectfully requested.

Respectfully submitted,


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